

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: ) GROUP ART UNIT: N/A

**SHIH-YIH R. YOUNG and**  
**GARY A. McGRAW** ) EXAMINER: N/A

SERIAL NO.: N/A ) DOCKET REF.: **02CR109/KE**

FILED: HERewith ) SUBMITTED: **July 31, 2003**

FOR: **"METHOD AND SYSTEM FOR FAULT DETECTION AND EXCLUSION FOR  
MULTI-SENSOR NAVIGATION SYSTEMS"**

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

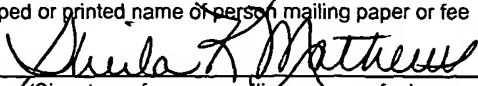
In accordance with 37 C.F.R. §1.56, the references listed below and on the attached form PTO/SB/08B are being brought to the attention of the Examiner for consideration in connection with the examination of the above-identified patent application.

English-Language Documents

None

Foreign-Language Documents

None

Express Mail Mailing Label	EV 214496320 US
Date of Deposit	July 31, 2003
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to the Commissioner of Patents, Mail Stop Patent Application, Alexandria, VA 22313-1450.	
Sheila K. Mathews	
Typed or printed name of person mailing paper or fee	
	
(Signature of person mailing paper or fee)	

Other Documents

1. Brenner, M., "Integrated GPS/Inertial Fault Detection Availability", ION GPS-95, Palm Springs, CA, Sept. 12-15, 1995, pp. 1949-1958.
2. Vanderwerf, K., "FDE Using Multiple Integrated GPS/Inertial Kalman Filters in the Presence of Temporally and Spatially Correlated Ionospheric Errors", ION GPS-2001, Salt Lake City, UT, Sept. 11-14, 2001, pp. 2676-2685.
3. Diesel, J., Luu, S., "GPS/IRS AIME: Calculation of Thresholds and Protection Radius Using Chi-Square Methods", ION GPS-95, Palm Springs, CA, Sept. 12-15, 1995, pp. 1959-1964.
4. Brumback, B. D., Srinath, M. D., "A Chi-Square Test for Fault Detection in Kalman Filters", *IEEE Transactions on Automatic Control*, Vol. AC-32, No. 6, June 1987, pp. 552-554.
5. Young, R. S. Y., McGraw, G. A., Driscoll, B. T., "Investigation and Comparison of Horizontal Protection Level and Horizontal Uncertainty Level in FDE Algorithms", ION GPS-96, Kansas City, MO, Sept. 17-20, 1996, pp. 1607-1614.
6. Brown, R. G., Chin, G. Y., "GPS RAIM Calculation of Thresholds and Protection Radius Using Chi-Square Methods—A Geometric Approach", *Red Book Series, Vol. V, of the Institute of Navigation on Global Positioning System*, The Institute of Navigation, Alexandria, VA, 1998, pp. 155-178.

7. Parkinson, B. W., Axelrad, P., "Autonomous GPS Integrity Monitoring Using the Pseudorange Residual", *NAVIGATION, Journal of the Institute of Navigation*, Vol. 35, No. 2, Summer 1988, pp. 255-274.
8. Young, R. S. Y., "Oceanic/Remote FDE Algorithm Design", internal memo, Rockwell Collins Inc., August 16, 1996.
9. Lee, Y., "New Techniques Relating Fault Detection and Exclusion Performance to GPS Primary Means Integrity Requirements", ION GPS-1995, Palm Springs, CA, Sept. 12-15, 1995, pp. 1929-1939.
10. Brown, R. G., "A Baseline GPS RAIM Scheme and a Note on the Equivalence of Three RAIM Methods," *NAVIGATION, Journal of the Institute of Navigation*, Vol. 39, No. 3, Fall 1992, pp. 301-316.
11. Van Diggelen, F., Brown, A., "Mathematical Aspects of GPS RAIM", *Proceedings of 1994 IEEE Position Location and Navigation Symposium*, Atlanta, March, 1994, pp. 733-738.
12. Enge, P. K., et al., "Combining Pseudoranges from GPS and Loran-C for Air Navigation", *NAVIGATION, Journal of the Institute of Navigation*, Vol. 37, No. 1, Spring 1990, pp. 281-298.
13. Horn, R. A., Johnson, C. R., *Matrix Analysis*, Cambridge University Press, 1985, page 421.
14. "Minimum Operation Performance Standard for Global Positioning System/Wide Area Augmentation System Airborne Equipment", Appendix R, RTCA/DO-229C.

15. Beyer, W. H., "Handbook of Tables for Probability and Statistics", The Chemical Rubber Company, Cleveland, Ohio, 1966, pp. 146-148.

This disclosure statement should not be construed as a representation that a search has been completed or that no other material information as defined in 37 C.F.R. §1.56(a) exists.

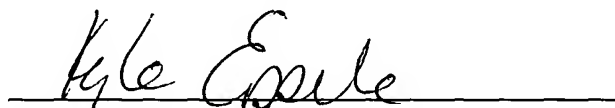
It is believed that this disclosure complies with the requirements of 37 C.F.R. §§ 1.56, 1.97, and 1.98, and the Manual of Patent Examining Procedures §609. If for some reason the Examiner considers otherwise, it is respectfully requested that the undersigned be called so that any deficiencies can be remedied.

Some of the documents may have markings thereon. No significance is meant by the attached markings.

These documents are not necessarily analogous art.

It is respectfully requested that the Examiner indicate consideration of the cited references by returning a copy of the attached form PTO/SB/08B with initials or other appropriate marks.

Respectfully submitted,

A handwritten signature in cursive script, reading "Kyle Eppele", is written over a horizontal line.

Kyle Eppele  
Attorney of Record  
Reg. No. 34,155

Rockwell Collins Inc.  
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Customer No. 26383

<b>INFORMATION DISCLOSURE</b>  <b>CITATION</b>		Attorney D cket No. <b>02CR109/KE</b>		Serial Number		
		Applicant <b>SHI-YIH R. YOUNG ET AL.</b>				
		Filing Date <b>Herewith</b>		Group		
<b>U. S. PATENTS</b>						
Exmnr Initl	Document No.	Issue Date	Name	Class	Subclass	Filing Date
<b>Foreign Patent Documents</b>						
	Document No.	Date	Country	Class	Subclass	Translation Yes      No
<b>Other Documents</b>						
	Brenner, M., "Integrated GPS/Inertial Fault Detection Availability", ION GPS-95, Palm Springs, CA, Sept. 12-15, 1995, pp. 1949-1958.					
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	Parkinson, B. W., Axelrad, P., "Autonomous GPS Integrity Monitoring Using the Pseudorange Residual", <i>NAVIGATION, Journal of the Institute of Navigation</i> , Vol. 35, No. 2, Summer 1988, pp. 255-274.					
	Young, R. S. Y., "Oceanic/Remote FDE Algorithm Design", internal memo, Rockwell Collins Inc., August 16, 1996.					
Examiner				Date Considered		
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through if not in conformance and not considered. Include copy of this form with next communication to Applicant.						

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Exmnr Initl	Document No.	Issue Date	Name	Class	Subclass	Filing Date
<b>Foreign Patent Documents</b>						
	Document No.	Date	Country	Class	Subclass	Translation Yes      N
<b>Other Documents</b>						
	Lee, Y., "New Techniques Relating Fault Detection and Exclusion Performance to GPS Primary Means Integrity Requirements", ION GPS-1995, Palm Springs, CA, Sept. 12-15, 1995, pp. 1929-1939.					
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